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EXAMINER	
SMITH, JOSHUA Y	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/730,004	YLA-OUTINEN ET AL.
	Examiner	Art Unit
	JOSHUA SMITH	2477

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/15/2010 has been entered.

- **Claims 1-44 are pending.**
- **Claims 1-44 stand rejected.**

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 44 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 44 recites "a computer-readable medium". The specification does not clearly state what "a computer-readable medium" is. As a result, "a computer-readable medium" can be a signal or a carrier wave, which are non-statutory subject matter, and this causes Claim 44 to be directed to non-statutory subject matter. Examiner suggests including ***non-transitory***, so that Claim 44 includes ***a <u>non-transitory</u> computer-readable medium***.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

   1. Determining the scope and contents of the prior art.
   2. Ascertaining the differences between the prior art and the claims at issue.
   3. Resolving the level of ordinary skill in the pertinent art.
   4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 10, 26, 28, 32, 37, 40, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil et al. (Patent Number: 6,128,279) in view of Sakagawa et al. (Patent No.: US 6,421,321 B1), hereafter respectively referred to as O'Neil and Sakagawa.

As for Claim 1, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in

network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (setting a load control information in a predetermined field of a layer three or above message, wherein the load control information is separate from addressing information for said

message; routing said message in a packet data network; checking said load control information on the routing path of said message; and selecting a processing resource of said packet data network in response to the result of said checking of said load control information).

O'Neil fails to teach control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17),

which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

As for Claim 2, O'Neil teaches in column 7, lines 24-26 and 57-67, and in column 8, lines 22-36, and in FIGS. 2-4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a case that step S403 (FIG. 4) decides that server 7 (FIG. 3) does not process URIs of the type contained in a request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and routing is performed in the same manner as in step S209 of FIG. 2, where step S209 (FIG. 2) routes a network request to the server which is currently processing the smallest load (a predetermined field is a subfield of a user part of an address header, the load control information enables load balancing to substantially equalize the load).

As for Claim 10, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL (a virtual address) /URI, where a

URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs in the request (a virtual address is shared by a plurality of processor nodes).

As for Claims 26 and 28, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which

URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (a checking unit configured to check load control information provided in a predetermined field of a layer three or above message; and a selector configured to select a processing resource for said message in response to said checking unit, and select a predetermined processor node to which said message is distributed).

O'Neil fails to teach control information is provided to at least one network element operating in a packet data network to terminate at least one network hop of said message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate at least one network hop of said message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

As for Claim 32, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based

on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the

request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (a transmitter configured to transmit a layer three of above message to a packet data network, wherein said apparatus is configured to set into a predetermined field of said message a load control information to select processing resources of said packet data network).

O'Neil fails to teach control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-

efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

As for Claim 37, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs in the request (set load control information in a host name).

As for Claim 40, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies

information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated

therewith accepts the request for processing by the server in step S406 (FIG. 4) (a first network element configured to set a load control information in a predetermined field of a layer three or above message to be routed in said packet data network; and a second network element configured to check said load control information on the routing path of said message, and configured to select a processing resource of said packet data network in response to the result of said checking of the load control information).

O'Neil fails to teach control information is provided to one network element operating in a packet data network to terminate one network hop of a message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-

efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

As for Claim 43, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of

"/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (checking means for checking load control information provided in a predetermined field of a layer three or above message; and selecting means for selecting a processing resource for said message in response to said checking means).

O'Neil fails to teach control information is provided to one network element operating in a packet data network to terminate one network hop of a message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a

shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

As for Claim 44, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing

module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (setting a load control information in a predetermined field of a layer three or above message; routing said message in said packet data network; checking said load control information on the routing path of said message; and selecting a processing resource of said packet data network in response to the result of said checking of said load control information).

O'Neil fails to teach control information is provided to one network element operating in a packet data network to terminate one network hop of a message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate one network hop of a message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, and further in view of Orton et al. (Patent No.: US 6,678,735 B1), hereafter referred to as Orton.

As for Claim 3, O'Neil and Sakagawa as applied to Claim 1 teach those limitations.

O'Neil fails to teach a via branch of a SIP message, wherein the message is a SIP message.

Orton teaches in lines 30-34, column 1, a Via header of a SIP message.

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Orton with the teachings of O'Neil in view of Sakagawa since Orton provides a method and apparatus that allows efficient operation of SIP by processing application non-essential information, such as routing information, in such a way that an application program is not detracted from its essential task, allowing the system elements of O'Neil in view of Sakagawa to connect to SIP without their application programs being overburdened.

As for Claim 5, O'Neil in view of Sakagawa as applied to Claim 1 teach those limitations.

O'Neil fails to teach URI of a SIP Route header.

Orton teaches in lines 14-15, column 10, Route headers, and, lines 24-25 and 42-44, column 11, and in FIG. 14, Sheet 8 of 8, of SIP message containing Uniform Resource Identifier (URI).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Orton with the teachings of O'Neil in view of Sakagawa since Orton provides a method and apparatus that allows efficient operation of SIP by processing application non-essential information, such as routing information, in such a way that an application program is not detracted from its essential task, allowing the system elements of O'Neil in view of Sakagawa to connect to SIP without their application programs being overburdened.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, Orton, and further in view of Morrow (Document Number: EP 1 089 515 A2), hereafter referred to as Morrow.

As for Claim 4, O'Neil in view of Sakagawa as applied to Claim 1 teach those limitations.

O'Neil fails to teaches copying from one predetermined filed to another.

Morrow shows in paragraph [0021], lines 27-37, and in FIG. 3A, page 10, item CSCF 2 receives an INVITE message with C2 as the destination address, and then puts the C2 address in the source address of the TRYING message (copying from one predetermined filed to another).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa and Orton since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and

economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa and Orton to allow compatibility with SIP in load management.

Claims 6-9, 12, 13 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, and further in view of Krause et al. (Patent Number: 5,914,953), hereafter referred to as Krause.

As for Claim 6, O'Neil in view of Sakagawa as applied to Claim 1 teach those limitations.

O'Neil fails to teach of a plurality of subfields in user part for conveying different types of information.

Krause shows in lines 15-25 and 36-40, column 17, and lines 52-63, column 58, and in FIG. 21A, Sheet 18 of 30, of a message packet header field containing a destination ID that contains four sub-fields, and where each sub-field is designed to carry a different type of information.

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Krause with the teachings of O'Neil in view of Sakagawa since Krause provides a router processing system that prevents deadlocks and provides fault tolerance, hardware redundancy, and software recovery techniques, enhancing the robustness of the system of O'Neil in view of Sakagawa.

As for Claim 7, O'Neil in view of Sakagawa and Krause as applied to Claim 6 teach those limitations.

O'Neil fails to teach the user part is parsed and divided into said subfields.

Krause shows in lines 15-25 and 36-40, column 17, and lines 52-63, column 58, and in FIG. 21A, Sheet 18 of 30, of a message packet header field containing a destination ID that is divided into four sub-fields.

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Krause with the teachings of O'Neil in view of Sakagawa since Krause provides a router processing system that prevents deadlocks and provides fault tolerance, hardware redundancy, and software recovery techniques, enhancing the robustness of the system of O'Neil in view of Sakagawa.

As for Claim 8, O'Neil in view of Sakagawa and Krause as applied to Claim 6, teach those limitations.

O'Neil fails to teach the user part is parsed and divided into said subfields.

Krause shows in lines 15-25 and 36-40, column 17, and lines 52-63, column 58, and in FIG. 21A, Sheet 18 of 30, of a message packet header field containing a destination ID with four sub-fields, where the first sub-field is a 14-bit Region ID, the second sub-field is a 6-bit Device ID, the third sub-field is three bits reserved for future expansion, and the fourth sub-field is a Path Select (P) bit.

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Krause with the teachings of O'Neil in view of Sakagawa since

Krause provides a router processing system that prevents deadlocks and provides fault tolerance, hardware redundancy, and software recovery techniques, enhancing the robustness of the system of O'Neil in view of Sakagawa.

As for Claim 9, O'Neil in view of Sakagawa and Krause as applied to Claim 6, teach those limitations.

O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs in the request (subfields are separated by a predetermined bit string, character, or character string).

As for Claim 12, O'Neil in view of Sakagawa as applied to Claim 2 teach those limitations.

O'Neil fails to teach a port number indicating a port for receiving.

Krause further teaches in line 47, column 63, of a 3-bit target port number, and, in lines 8-9, column 64, of input ports.

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Krause with the teachings of O'Neil in view of Sakagawa since Krause provides a router processing system that prevents deadlocks and provides fault tolerance, hardware redundancy, and software recovery techniques, enhancing the robustness of the system of O'Neil in view of Sakagawa.

As for Claim 13, O'Neil in view of Sakagawa and Krause as applied to Claims 2 and 12 teach those limitations.

Morrow fails to teach a second port.

Krause further teaches in lines 8-9, column 64, of two or more input ports.

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Krause with the teachings of O'Neil in view of Sakagawa since Krause provides a router processing system that prevents deadlocks and provides fault tolerance, hardware redundancy, and software recovery techniques, enhancing the robustness of the system of O'Neil in view of Sakagawa.

As for Claim 35, O'Neil in view of Sakagawa as applied to Claim 32 teach those limitations.

O'Neil fails to teach an apparatus is configured to set said load control information in a user part of a header address of said message.

Krause shows in lines 15-25 and 36-40, column 17, and lines 52-63, column 58, and in FIG. 21A, Sheet 18 of 30, of a message packet header field containing a destination ID that contains four sub-fields, and where each sub-field is designed to carry a different type of information (an apparatus is configured to set said load control information in a user part of a header address of said message).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Krause with the teachings of O'Neil in view of Sakagawa since Krause provides a router processing system that prevents deadlocks and provides fault tolerance, hardware redundancy, and software recovery techniques, enhancing the robustness of the system of O'Neil in view of Sakagawa.

Claims 11, 27, 29-31, 33, 34 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, and further in view of Morrow.

As for Claim 11, O'Neil in view of Sakagawa as applied to Claim 10 teach those limitations.

O'Neil fails to teach a processor node has a call state control functionality of an internet based cellular network.

Morrow teaches in paragraph [0016], lines 47-52, of a processor containing multiple call session control functions (CSCF), and, in paragraph [0018], lines 31-33, 37-38, and 43-51, of CSCFs operating in a connectionless network protocol involving a cellular system (a processor node has a call state control functionality of an internet based cellular network).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

As for Claims 27, O'Neil in view of Sakagawa as applied to Claim 26 teach those limitations.

O'Neil fails to teach a call state control functionality of an internet based cellular network.

Morrow teaches in paragraph [0016], lines 47-52, of a processor containing multiple call session control functions (CSCF), and, in paragraph [0018], lines 31-33, 37-38, and 43-51, of CSCFs operating in a connectionless network protocol involving a cellular system (a call state control functionality of an internet based cellular network).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be

introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

As for Claims 29 and 30, O'Neil in view of Sakagawa as applied to Claim 26 teaches load control information.

O'Neil fails to teach a selector is configured to initiate creation of a new session, and control information comprises a first information indicating whether a session of said message is already existing.

Morrow shows in lines 41-54, column 8, and in FIG. 7, page 14, that a message is checked by the NAT to determine if the message is the first message of a transaction yet to be established by the NAT or a message of an already established transaction, implicitly teaching that the message contains sufficient information to determine this (a selector is configured to initiate creation of a new session, and control information comprises a first information indicating whether a session of said message is already existing).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

As for Claim 31, O'Neil in view of Sakagawa and Morrow as applied to Claim 30 teaches load control information and a session.

O'Neil fails to teach control information comprises a second information for identifying said existing session.

Morrow shows in lines 48-54, column 8, and in FIG. 7, page 14, the NAT can identify the CSCF and the transaction originator if the handshake process has already happened, implicitly teaching that the message contains sufficient information after a handshake process to determine the participants of an established connection (control information comprises a second information for identifying said existing session).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

As for Claim 33, O'Neil in view of Sakagawa as applied to Claim 32 teach those limitations.

O'Neil fails to teach a call state control functionality of an internet based cellular network.

Morrow teaches in paragraph [0016], lines 47-52, of a processor containing multiple call session control functions (CSCF), and, in paragraph [0018], lines 31-33, 37-38, and 43-51, of CSCFs operating in a connectionless network protocol involving a cellular system (a call state control functionality of an internet based cellular network).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

As for Claim 34, O'Neil in view of Sakagawa as applied to Claim 32 teach those limitations.

O'Neil fails to teach a call state control functionality is a serving call state control functionality or a proxy call state control functionality.

Morrow teaches in paragraph [0016], lines 47-54, call session control functions (CSCFs) (a call state control functionality is a serving call state control functionality or a proxy call state control functionality).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern

communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

As for Claims 42, O'Neil in view of Sakagawa as applied to Claim 40 teach those limitations.

O'Neil fails to teach a call state control functionality.

Morrow teaches in paragraph [0016], lines 47-52, of a processor containing multiple call session control functions (CSCF), and, in paragraph [0018], lines 31-33, 37-38, and 43-51, of CSCFs operating in a connectionless network protocol involving a cellular system (a call state control functionality).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa to allow compatibility with SIP in load management.

Claims 14, 16-23 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, and further in view of Black (Pub. No.: US 2004/0057449 A1), hereafter referred to as Black.

As for Claims 14 and 16, O'Neil in view of Sakagawa as applied to Claim 1 teach those limitations.

O'Neil fails to teach load control information comprises a first information indicating whether a session of said message is already existing, and control information is stored in a route header field of a session initiation protocol message.

Black teaches in paragraphs [0117] and [0118], and in FIG. 2, a CD dynamically selects a UDP port on which it intends to listen for group communication media signaling requests and communicates the port number to CM 218 (FIG. 2) as part of the SIP invitation it delivers when attempting to join a group, and a group's CM media signaling destination address (including the UDP port number) is described in the group's session description delivered as part of a successful SIP INVITE request's response (load control information comprises a first information indicating whether a session of said message is already existing, and control information is stored in a route header field of a session initiation protocol message).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Black with the teachings of O'Neil in view of Sakagawa since Black provides a system of connection establishment signaling utilizing port numbers and SIP messages, which can be introduced into the teachings of O'Neil in view of Sakagawa to allow efficient communication establishment utilizing SIP signaling.

As for Claim 17, O'Neil teaches in column 4, lines 27-30, URIs that arrive in encrypted requests will be decrypted by the server (load control information is a hidden information not meaningful to other networks).

As for Claims 18 and 19, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs in the request (load control information is set as a part of a host name of a header field, and load control information is set as a parameter of a header field).

As for Claims 20 and 21, O'Neil in view of Sakagawa and Black as applied to Claim 14 teach those limitations.

O'Neil fails to teach control information is set as a port number of a header field, and a port number is used for differentiating a first message from subsequent messages.

Black teaches in paragraphs [0117] and [0118], and in FIG. 2, a CD dynamically selects a UDP port on which it intends to listen for group communication media signaling requests and communicates the port number to CM 218 (FIG. 2) as part of the SIP invitation it delivers when attempting to join a group, and a group's CM media signaling destination address (including the UDP port number) is described in the group's session description delivered as part of a successful SIP INVITE request's response (control information is set as a port number of a header field, and a port number is used for differentiating a first message from subsequent messages).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Black with the teachings of O'Neil in view of Sakagawa since Black provides a system of connection establishment signaling utilizing port numbers and SIP messages, which can be introduced into the teachings of O'Neil in view of Sakagawa to allow efficient communication establishment utilizing SIP signaling.

As for Claim 22, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is

directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs in the request (load control information is set as an extension header field to a header field).

As for Claim 23, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs in the request (load control information is set in a payload portion of said message).

As for Claim 38, O'Neil in view of Sakagawa as applied to Claim 32 teach those limitations.

O'Neil fails to teach information indicating whether a session of said message is already existing.

Black teaches in paragraphs [0117] and [0118], and in FIG. 2, a CD dynamically selects a UDP port on which it intends to listen for group communication media signaling requests and communicates the port number to CM 218 (FIG. 2) as part of the SIP invitation it delivers when attempting to join a group, and a group's CM media signaling destination address (including the UDP port number) is described in the group's session description delivered as part of a successful SIP INVITE request's response (information indicating whether a session of said message is already existing).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Black with the teachings of O'Neil in view of Sakagawa since Black provides a system of connection establishment signaling utilizing port numbers and SIP messages, which can be introduced into the teachings of O'Neil in view of Sakagawa to allow efficient communication establishment utilizing SIP signaling.

Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, Black, and further in view of Morrow.

As for Claim 15, O'Neil in view of Sakagawa as applied to Claim 1 teaches load control information and a session.

O'Neil fails to teach control information comprises a second information indicating an identification of said existing session.

Morrow shows in lines 48-54, column 8, and in FIG. 7, page 14, the NAT can identify the CSCF and the transaction originator if the handshake process has already happened, implicitly teaching that the message contains sufficient information after a handshake process to determine the participants of an established connection (control information comprises a second information indicating an identification of said existing session).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa and Black since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa and Black to allow compatibility with SIP in load management.

As for Claim 24, O'Neil in view of Sakagawa and Morrow as applied to Claims 1 and 15 teach using information for selection of a processing resource.

O'Neil fails to teach extracting second information in response to a detection of first information.

Morrow teaches extracting information in response to detecting information. Morrow further teaches in paragraph [0022], lines 46-48, when an incoming packet is

detected with a destination address of C, the NAT looks it up in the route table, implicitly teaching that the NAT can detect the address of C in the incoming packet and extract it for the purposes of comparing it to the route table (extracting second information in response to a detection of first information).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa and Black since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa and Black to allow compatibility with SIP in load management.

Claims 25 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa and Fredericks et al. (Patent Number: 6,115,361), hereafter referred to as Fredericks.

As for Claim 25, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401

(FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (creating a first load control information in a first network element; setting said first load control information into a predetermined field of a layer three or above message; routing said message to a second network element; storing said first load control information in

said second network element; creating a second load control information in said second network element; setting said second load control information into a predetermined field of a second layer three or above message; routing said second message to said first network element; and storing said second load control information at said first network element).

O'Neil fails to teach control information is provided to at least one network element operating in a packet data network to terminate at least one network hop of said message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate at least one network hop of said message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-

efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

O'Neil fails to explicitly teach storing control information at a network element.

Fredericks teaches in lines 66, column 4, to line 3, column 5, of devices that support a certain service maintain a registration list (e.g., a database, stack, or equivalent data structure) containing addresses of other devices from which it received requests, and, in lines 19-27, column 5, each device can exchange requests and maintain lists (storing control information at a network element).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Fredericks with the teachings of O’Neil in view of Sakagawa since Fredericks provides a method for efficiently reporting network link failures among network elements, allowing the network of O’Neil in view of Sakagawa to identify network problems and to compensate for and bypass such failures.

As for Claim 41, O'Neil teaches in column 4, lines 1-9 and 22-36, and in column 7, line 57 to column 8, line 37, and in FIGS. 3 and 4, load balancing is performed based on a content of a network request, in this case a URL/URI, where a URI specifies information of interest at a Web site addressed by a URL, for example, in a request such as "www.foo.com/banking", "/banking" is the URI and indicates that the request is

directed to information at the "foo" Web site that relates to "banking", and URIs in network requests are used to distribute requests among servers, and in a step S401 (FIG. 4), a load balancing module 17 (FIG. 3) receives a request from either network DNS 21 or from local DNS 4 (see FIG. 3), and in step S402 (FIG. 4), the load balancing module then analyzes the request to determine its content, and in particular, load balancing module 17 analyzes the request to identify URIs (or lack thereof) in the request, and step S402 determines which server(s) are dedicated to processing which URIs, and which server(s) are dedicated to processing requests having no URI, and where the load processing module of each server is configured to accept requests for one or more URIs, thus limiting the server to processing requests for those URIs, for example, load balancing module 17 may be configured to accept requests with a URI of "/banking", whereas load balancing module 19 may be configured to accept requests with a URI of "/securities", and in a case step S403 (FIG. 4) decides that server 17 is dedicated to processing URIs of the type contained in the request, flow proceeds to step S404 (FIG. 4), and in step S404 (FIG. 4), the request is accepted by load balancing module 17 and processed in server 7 (FIG. 3), on the other hand, in a case that step S403 decides that server 7 does not process URIs of the type contained in the request, flow proceeds to step S405 (FIG. 4), and this step routes the request to one of server 7's peers that is dedicated to processing requests containing such URIs, and once the request is received at the appropriate server, the load balancing module associated therewith accepts the request for processing by the server in step S406 (FIG. 4) (a first network element configured to create a first load control information and configured to

set said first load control information into a predetermined field of layer three or above a message; and a second network element configured to receive said message, to store said first load control information, to store a second load control information, to set said second load control information into a predetermined field of a second layer three or above message, and to route said second load control information to said first network element, wherein said first network element is configured to store said second load control information).

O'Neil fails to teach control information is provided to at least one network element operating in a packet data network to terminate at least one network hop of said message.

Sakagawa teaches in column 9, lines 2-11, and in FIG. 3 and FIG. 4, that, if preferable, terminal A sends an SP Request message to the destination through a default route (S8, FIG. 4), and the message is sent to terminal B through the default route (S9, S10, FIG. 4) in the same way as a first packet, and when terminal B recognizes that the message is addressed thereto, it requests a network to set a shortcut path (S11, S12, FIG. 4), and the network sets a shortcut path between ingress system terminal A and egress system terminal B (S13, S14, FIG. 4), and once a shortcut path is set, the following packets are forwarded between the ingress system and the egress system through the shortcut path (S15, S16, FIG. 4) (control information is provided to at least one network element operating in a packet data network to terminate at least one network hop of said message).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the invention of Sakagawa with the invention of O'Neil since Sakagawa provides a method which can transfer packets at high speeds and with high-efficiency and that provides a packet transferring method which is economical and highly reliable, particularly in terms of security (see Sakagawa, column 6, lines 12-17), which can be introduced into the system of O'Neil to allow the selection of paths that provide higher packet transfer speeds in addition to load balancing and enhancing the forwarding capabilities of the system of O'Neil.

O'Neil fails to explicitly teach a network element storing control information.

Fredericks teaches in lines 66, column 4, to line 3, column 5, of devices that support a certain service maintain a registration list (e.g., a database, stack, or equivalent data structure) containing addresses of other devices from which it received requests, and, in lines 19-27, column 5, each device can exchange requests and maintain lists (a network element storing control information).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Fredericks with the teachings of O’Neil in view of Sakagawa since Fredericks provides a method for efficiently reporting network link failures among network elements, allowing the network of O’Neil in view of Sakagawa to identify network problems and to compensate for and bypass such failures.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, Krause, and further in view of Orton.

As for Claim 36, O'Neil in view of Sakagawa as applied to Claim 32 teach those limitations.

O'Neil fails to teach URI of a SIP Route header.

Orton teaches in lines 14-15, column 10, Route headers, and, lines 24-25 and 42-44, column 11, and in FIG. 14, Sheet 8 of 8, of SIP message containing Uniform Resource Identifier (URI).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Orton with the teachings of O'Neil in view of Sakagawa and Krause since Orton provides a method and apparatus that allows efficient operation of SIP by processing application non-essential information, such as routing information, in such a way that an application program is not detracted from its essential task, allowing the system elements of O'Neil in view of Sakagawa and Krause to connect to SIP without their application programs being overburdened.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil in view of Sakagawa, Black, and further in view of Morrow.

As for Claim 39, O'Neil in view of Sakagawa as applied to Claim 32 teaches load control information and a session.

O'Neil fails to teach control information comprises a second information indicating an existing session.

Morrow shows in lines 48-54, column 8, and in FIG. 7, page 14, the NAT can identify the CSCF and the transaction originator if the handshake process has already

happened, implicitly teaching that the message contains sufficient information after a handshake process to determine the participants of an established connection (control information comprises a second information indicating an existing session).

It would have been obvious to one skilled in the art at the time of the invention to combine the invention of Morrow with the teachings of O'Neil in view of Sakagawa and Black since Morrow provides a method using SIP for enhancing system performance of a modern communications network system by implementing a more efficient and economical call control processing scheme (see Morrow, paragraphs [0009] and [0010]), which can be introduced into the teachings of O'Neil in view of Sakagawa and Black to allow compatibility with SIP in load management.

Response to Arguments

I. Arguments for Claim Rejections under 35 USC § 103.

Applicant's arguments with respect to claims 1-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA SMITH whose telephone number is 571-270-1826. The examiner can normally be reached on Monday-Friday, 10:30am-7pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag Shah can be reached on 571-272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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